



# ROLE OF ICT IN QUALITY ENHANCEMENT IN TEACHER EDUCATION

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## ABSTRACT

The basic theme for the paper is to introduce very role of the Information and communication technology in providing quality education. This will include the need for ICT in education sector and various types of tools and techniques of ICT commonly used in education sector. On the other hand, the paper also describes the advantages to learn with ICT and focuses mainly on various issues and challenges that come across in integrating ICT in school education. This paper focuses on teaching and learning with information and communications technology (ICT) across a range of subjects, drawing on the research of the Interactive Education.

This paper also describes how teams of teachers have developed ways of embedding information and communication technology (ICT) into everyday classroom practices to enhance learning. The focus is on integrating ICT with teaching-learning process across a range of subjects: English, history, geography, mathematics, modern foreign languages, music and science. The lag in the creative thinking and intuitive knowledge construction is emphasized and it is somewhere seen that this is exacerbated by the use of ICT in the classroom. The impact of ICT on students' minds in relation to out-of-school uses of ICT tools and resources has been discussed.

**KEYWORDS:** ICT, Learning Outcomes, Digital Technology, Subject Knowledge, Teaching.

## INTRODUCTION:

In this era of ever growing importance of technology, every sector has assimilated and adapted itself to the use of electronic media and technology in their respective fields for the sole purpose of improvisation. Schools are no exception either. Information and Communication Technology (ICT) has now been used in the field of education for more than 20 years. The national policy on education came up in 1986, which was amended in 1992, which stressed upon fostering the use of technology in education sector so as to improve the quality of education. This policy led to the formation of two major schemes namely, Educational Technology (ET) and Computer Literacy and Studies in Schools (CLASS) which in order formed the path for the more comprehensive scheme- INFORMATION COMMUNICATION AND TECHNOLOGY at schools in 2004. ICT has been introduced into school education through a series of funding and initiatives of government like the implementation of ICT policy in school education system since micro-computers have been launched into schools in 1981. Although, these initiatives are a combination of hardware, software and teacher-training, but are not always in a coordinated fashion.

Information and Communication Technology is the convergence of Information technology (IT), and communication Technology (CT) (Internet, satellite, Telecommunication, broadcast). According to UNESCO (2002), "ICT refers to forms of technologies that are used to create, store, share or transmit, exchange information. ICT includes radio, television, video, DVD, telephone (fixed line & mobile), satellite systems, computer and network hardware and software; (equipment & services associated with these technologies, such as video conference, electronic mail)"

This augmenting importance of Information, Communication and Technology has lead to the adoption of various ICT resources by schools as a means to inculcate requisite knowledge and adequate education to students to foster the teaching learning process.

With the introduction of ICT in schools, both as a part of curriculum as well as for use in teaching- learning process, education in schools have seen a new phase altogether. Since then, the role of computer-aided learning has become eminent and has consequently become indispensable for acquiring education in schools. It has been said and observed that ICT plays a phenomenal role in the teaching-learning process.

The formation of ICT policy merely is not an important but the idea is the implementation of it, to use ICT that is readily available in the schools and yet under-utilized. Also, the use of ICT alone does not enhance learning but the art of incorporating ICT into learning activities through different pedagogies is what is important. The subject knowledge for teaching any of the subjects is foremost needed quality within teacher and is an inextricable part of the teaching- learning process, that is why various subject areas taken in the research : English, modern foreign languages, music, science, mathematics, history and geography. This has enabled us to compare the embedding of ICT across a range of subjects in teaching-learning process.

## Need for ICT in Education:

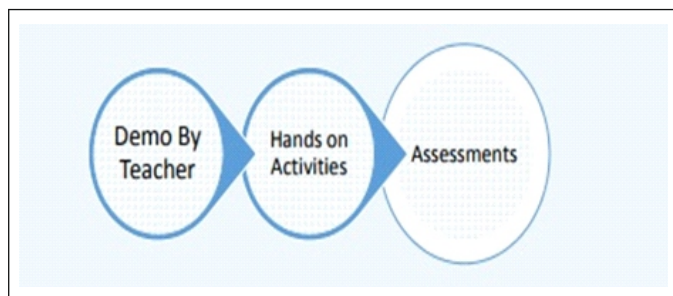
ICT helps in use of technological tools and resources used to communicate, create, disseminate, store and manage information and link it to the mass especially to the young generation. These technologies include computers, the internet, broadcasting technologies (radio, television), satellites, and telephony, including mobiles. The need of ICT in education is not only limited in the regular classroom basis but needed more than that for various other issues like the size of population, awareness about the inclusive education, cost effectiveness, quality enhancement etc. every learner is diverse and want to learn at their own pace, place, time and their own choice of modern learning resources. So, today's generation may be able to enjoy the learning in education field if the technology used behind the concepts are appropriately integrated for providing the quality education.

## Contribution of ICT in Education Sector:

The significant role of ICT in enhancing the quality of school education has been highlighted in the National curriculum framework (NCF-2005). It had rightly stated in NCF that ICTs can contribute access to education at the universal level, provides equal opportunities to all to acquire education, as well as the areas of educational programs can be increased by the integrating the use of ICTs, also helps in addressing the learning needs and requirements in education, the delivery of quality education, development of teachers' professional as well as improve educational administration and management, by providing an appropriate combination of policies, technologies and capacities are in place. The use of ICTs also plays an important role in strengthening the links between schools, local and global communities. It can promote innovation, increase productivity and enrich quality of life. 21st century is characterized with the emergence of knowledge based society wherein ICT plays a critical role. The National curriculum framework 2005 (NCF 2005) has also highlighted the importance of ICT in school education. Keeping in mind the importance of ICT, education is characterized by imparting instructions, collaborative learning, and multidisciplinary problem-solving and promoting critical and creative thinking skills among the students as well in the teachers for updating themselves in every sphere of life. NCF had framed the ICT mediated curriculum in education with certain objectives as follows.

## ICT Curriculum objectives:

- To develop the discerning skills within the students that will enable them to work and compete efficiently in an increasingly digital society.
- To enable the students access various tools and applications for learning and skill development opportunities.
- To operate a variety of hardware and software independently and troubleshoot common problems and using the ICT facility with care and intelligence.
- To develop the curiosity among the students to create a variety of digital products using appropriate ICT tools and to save, store and manage the digital resources

**Teaching Methodology Using ICT:**

The methodology will be as follows:

**Step 1: Demo by the Teachers:**

At this step, Teacher will demonstrate the activities by incorporating the use of ICTs to the students with the help of instructions given in the teacher's manual.

**Step 2: Hands on Activities:**

Based on the demonstration given by Teacher, the students will be able to perform the Hands on activities. Teachers will facilitate the session in the class. If any students like to explore further in that specific area, then teachers support them through extended activities.

**NOTE:** If there are more than 20 students in a class then the class will be divided into groups of 20 students for the Hands on session.

- One group will attend the ICT Lab for doing Hands on activities.
- Rest of the group will go for the other subject classes / labs.

**Step 3: Assessments:**

**E-portfolio:** At the end of the Hands on Activities, students will submit the outputs in the e-portfolio which will be assessed by the teachers and grade them.

**Showcase:** At the end of the year students will showcase the outputs in the e-portfolio which will be assessed by the Teachers.

**Challenges and issues:**

- Infrastructure related challenges in ICT-enhanced education
- The challenges with respect to capacity- building
- The challenges in the area of language and content
- Challenges related to financing the cost of ICT use
- Requirement of skillful teachers with good quality of knowledge
- Internet Connectivity with adequate bandwidth

**LITERATURE REVIEW:**

- Despite three decades of government initiatives and academic research, the use of information and communications technology (ICT) in teaching and learning remains only partially understood by educationalists and inconsistently practiced in schools (Goldstein 1997).
- Whereas within any particular school similar local, national and international cultures may be influencing what happens in the classroom, we have increasingly become aware that different subject cultures impact differently on how ICT is used in the classroom (Goodson & Mangen 1995; John & La Velle in press).
- The teacher has an important role in that 'appropriately arranged contrasts can help people notice new features that previously escaped their attention and learn which features are relevant or irrelevant to a new concept' (Branford et al. 1999, p. 48).
- Whereas within any particular school similar local, national and international cultures may be influencing what happens in the classroom, we have increasingly become aware that different subject cultures impact differently on how ICT is used in the classroom (Goodson & Mangen 1995; John & La Velle in press).
- The judicious use of technology can increase the reach of educational programs, facilitate management of the system as well as help address specific learning needs and requirements, possibilities of teaching and learning at varied places, self learning, enabling dual modes of study etc. could all benefit from the use of technology, particularly information and communication technology to enable these processes (NCF-2005)

- Teachers' motivation to use ICT in the classroom is, at present, adversely influenced by a number of constraints including: lack of time to gain confidence and experience with technology; limited access to reliable resources; a science curriculum overloaded with content; assessment that requires no use of the technology; and a lack of subject-specific guidance for using ICT to support learning (Osborne & Hennessy 2003)
- Ten Brummelhuis and Kuiper (2008) in this Handbook distinguish four key elements that affect learning processes directly: the learner, the teacher, the curriculum and the infrastructure. Learners and teachers are the key players in the learning process.
- The development of computer technology from processing information to also supporting communication augmented its potential for education. Owing to the enormous impact of these technologies, our society is in transition towards an information or knowledge society (Anderson, 2008).
- Information and communication technology refers to all technologies used for processing information and communicating. Because of the integration of computers with communication systems, including audio and video technology, also terms such as multimedia or digital media are being used (Anderson, 2008).
- The ever-changing technology environment makes effective research into IT in education difficult, complex and challenging. This is particularly true for studying the impact for IT on student teaching (Cox, 2008).
- Liao and Hao (2008) provide a comprehensive overview of findings from meta-analysis carried out between 1986 and 2006 in which they reviewed studies that compared IT-enhanced instruction and IT-enhanced distance education with traditional classroom instruction.

**OBJECTIVES:**

1. To analyze the effectiveness of ICT in providing quality education.
2. To see what are the various challenges faced in the use of ICT in the education sector.
3. To provide the suggestion so as to improve the ICT integration in education sector.
4. To assess the status of the ICT infrastructure in the selected schools
5. To assess the extent of integration of ICT in the teaching learning of other subjects;

**RESEARCH METHODOLOGY:**

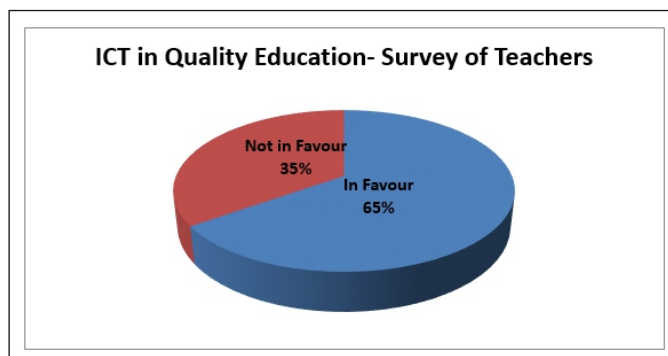
Our research is based on both the primary and secondary resources. Collected the data and information by surfing the net using the secondary sources, like internet (various websites), magazines, journals, related articles, periodicals and various research papers.

On the other hand, the primary research is being done with the help of a survey in the schools of Delhi including a check list for the ICT infrastructure and resources, questionnaires for ICT teachers, subject teachers, students, head teacher and parents, pupil teachers and teacher educator. The questionnaire was framed keeping in mind the above mentioned objectives which were filled up by the teachers, students and the parents accordingly. There were three different questionnaire framed for the different sample and area we chose for the conducting the survey.

**RESULTS AND DISCUSSION:**

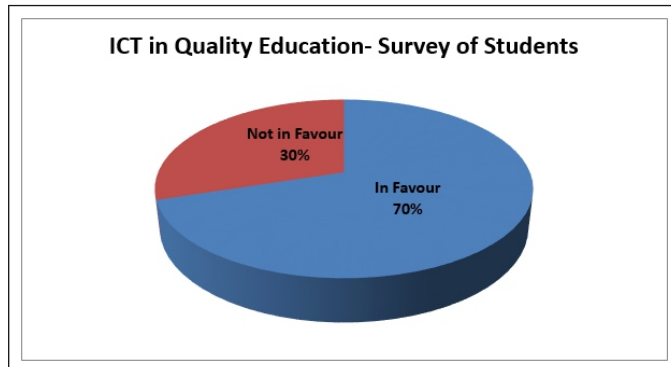
The key findings of our present research are as follows:

Out of a sample size of 60, consisting of 20 teachers, 20 students and 20 parents, following were the key findings of our research:

**Views of teachers:**

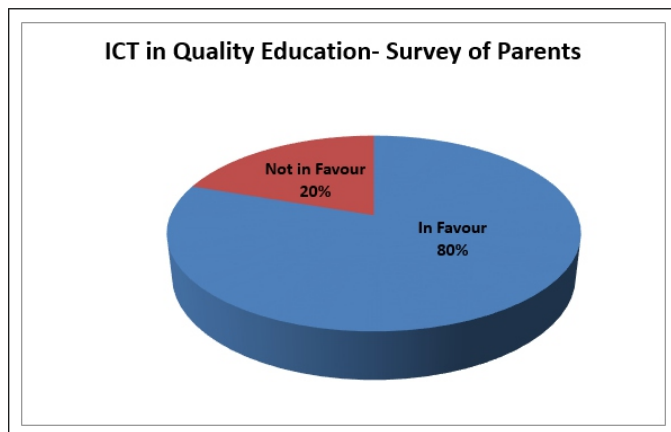
As depicted in the pie-chart above, out of the 20 teachers who were surveyed, 65% of the teachers, i.e. 13 teachers consented to the fact that ICT helps in enhancing the quality of education in schools and they were quite convinced with the role ICT has been playing to foster teaching learning process, whereas the rest 35% dissented the use of ICT in education. According to them, the knowledge about technology has lead to more of misuse of technology than its proper use, which in turn, is greatly affecting the students in all the areas of their growth and development.

#### Views of students:



The above pie-chart depicts that out of the 20 students who were surveyed, 70% of the students i.e. 14 students enjoyed the teaching learning process through the use of ICT tools and resources. According to them, with the introduction of ICT, learning has become easy and a fun activity and memorizing the lessons are no more a tedious job for them. However, the remaining 30% students resented the use of computers and other media in studies.

#### Views of Parents:



The above pie-chart shows that out of 20 parents who were surveyed, 80% of the parents i.e. 16 parents asserted that ICT plays a vital role in fostering the learning process of their children and has a positive impact on their studies. According to them, with the use of ICT in education, their children have become more aware, active and enthusiastic about their studies. However, the remaining 20% parents expressed their concern on the perilous impact of technology and media that children are prone to. According to them, children are exposed to a lot many things on the internet which may affect their growing minds negatively.

#### CONCLUSION:

Thus, keeping in mind the above findings, we can conclude by stating that a majority of teachers, students as well as parents believe that ICT plays a positive role in fostering the teaching learning process of students in school as well as in enhancing the quality of education in the present scenario. However, one cannot neglect the adverse effect of ICT on children, which is curbing their growth and development.

The teachers, who resented the use of ICT in education, apprised us of the behaviors and habits of students while studying through Smartboards. The teachers shared their experience of teaching with Smartboards, where the students hardly pay any attention to the lesson being taught and are rather involved in their own work and talking, which eventually disturbs the whole class. The teachers also expressed their concern of completing the syllabus within the stipulated time which becomes a difficult task while using ICT tools and resources. Teachers also asserted that children have become way too dependent on the internet for each and every purpose which has blocked their thinking process and hampered their cognitive growth.

Also, the parents who were not in favor of using ICT in education had similar con-

cerns. On interaction with them, they expressed their distress about their children using technology and other electronic gadgets on a continuous basis. Children hardly made use of ICT in studies rather they kept themselves busy surfing on the net, using social media, gaming etc.

Thus, ICT should be well managed and optimally used in areas of education both in schools as well as at home and strict governance and monitoring by teachers and parents over the students activities is important in fostering the child's over-all growth and development.

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